

WHAT IS CLAIMED IS:

1. A CT imaging method comprising the steps of:  
determining from tomographic images information  
representing geometries of contact surfaces between  
markers and an object to be imaged, the tomographic  
images being obtained by imaging the object attached  
with the markers on its reference surfaces by a CT  
apparatus using an X-ray or radiation;

based on the information representing the  
geometries of the contact surfaces, determining a  
positional relation between a reference coordinate  
system of the object and a coordinate system of the CT  
apparatus; and

imaging the object by the CT apparatus and,  
based on the positional relation, producing bit-map  
data of a desired portion of the object.

2. A CT imaging method comprising:

a marker application process to attach  
markers to reference surfaces of an object to be  
imaged;

a preliminary imaging process to image the  
object attached with the markers by using a CT  
apparatus using an X-ray or radiation and produce  
tomographic images;

a marker identifying process to perform image  
processing on the tomographic images to determine  
geometric features of contact surfaces between the  
markers and the object;

a coordinate system determination process to determine a positional relation between a reference coordinate system of the object and a coordinate system of the CT apparatus, based on the geometric features of the contact surfaces; and

a real imaging process to image the object by the CT apparatus and, based on the positional relation, produce tomographic images of a desired portion of the object.

3. A CT imaging method according to claim 2, wherein a tomographic pitch at which the object is imaged in the preliminary imaging process is larger than a tomographic pitch at which the object is imaged in the real imaging process.

4. A CT imaging method according to claim 1, wherein the markers have an X-ray or radiation transmissivity different from that of the object.

5. A CT imaging method according to claim 2, wherein the markers have an X-ray or radiation transmissivity different from that of the object.

6. A CT imaging method according to claim 1, wherein the markers are attached to at least one of a planar surface, cylindrical surface, revolution surface, quadratic surface and translated surface of the object.

7. A CT imaging method according to claim 2, wherein the markers are attached to at least one of a planar surface, cylindrical surface, revolution

surface, quadratic surface and translated surface of the object.

8. A CT imaging method according to claim 1, wherein the markers are attached to the surfaces of the object through a pad and have a density of 20% or less of that of the object.

9. A CT imaging method according to claim 2, wherein the markers are attached to the surfaces of the object through a pad and have a density of 20% or less of that of the object.

10. A CT apparatus comprising:  
a radiation source to emit an X-ray or radiation to an object to be imaged;

a turntable to rotate and translate the object;

a detector to detect the X-ray or radiation that has penetrated through the object fixed on the turntable; and

a signal processor to process a detection signal from the detector to produce tomographic images of the object;

wherein the signal processor has:

a marker identifying means to perform image processing on the tomographic images obtained from the detection signal of the X-ray or radiation that has passed through the object attached with markers on its reference surfaces and to determine geometric features of contact surfaces between the markers and the object;

and

a coordinate system determination means to, based on the geometric features of the contact surfaces, determine a positional relation between a reference coordinate system of the object and a coordinate system of the turntable.

11. A CT apparatus according to claim 10, wherein the signal processor produces tomographic images of a desired portion of the object based on the positional relation determined by the coordinate system determination means.

12. A CT apparatus according to claim 10, further comprising a means to specify a marker arrangement pattern with respect to the object.

13. A CT apparatus according to claim 11, further comprising a means to specify a marker arrangement pattern with respect to the object.

14. A CT imaging service method comprising:  
a process of receiving from a customer an object to be imaged which is attached with markers on its reference surfaces and information on a desired portion of the object that the customer wants imaged;

an imaging process involving a step of imaging the object with a CT apparatus using an X-ray or radiation to produce tomographic images of the object, a step of performing image processing on the tomographic images to determine geometric features of contact surfaces between the markers and the object, a

step of determining a positional relation between a reference coordinate system of the object and a coordinate system of the CT apparatus based on the geometric features of the contact surfaces, and a step of imaging the object with the CT apparatus to produce tomographic images of the desired portion of the object based on the positional relation; and

a delivery process to provide the customer with the object and the tomographic images of the desired portion.

15. A CT imaging service method according to claim 14, wherein

the reception process receives from the customer the object accommodated in a container and information on a marker arrangement pattern on the surfaces of the object, and

the imaging process produces tomographic images of the object with the object accommodated in the container.